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# CURRENT LITERATURE IN AGRICULTURAL ENGINEERING

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Vol. 7, No. 9.

WASHINGTON, D. C.

April, 1938.

## Accidents.

Safety of consumers in rural areas. By H.G. Taylor. London, British electrical and allied industries research association, 1936. 46p.

## Agricultural Engineering.

Agricultural engineer key to better values. By Elmer T. Wible. Agricultural Engineering. v.19, no.3. March, 1938. p.120.

Engineering in a changing agriculture. By W.C. Krueger. Agricultural Engineering. v.19, no.3. March, 1938. p.114. Agricultural engineering deals with physical equipment and mechanical means used in agricultural production and farm activities incident thereto.

## Agriculture.

Agricultural Adjustment Act of 1938. American Fertilizer. v.88, no.4. February 19, 1938. p.5-9, 24, 26. New crop control law affects five major crops. Soil Conservation program continued. Crop loan regulations included.

The farm outlook for 1938. By A.G. Black. Nation's Agriculture. v.13, no.3. February, 1938. p.4-5, 11.

Fiftieth annual report of the South Carolina experiment station of Clemson agricultural college for the year ended June 30, 1937. Clemson, S.C., 1937. 165p.

Forty ninth annual report, fiscal year ending June 30, 1937. Arkansas agricultural experiment station. Fayetteville, Arkansas, 1938. 94p. Water resources for rice irrigation, p.11. Soils and erosion, p.20-23. Use of tractors on delta plantations, p.86-87.

January farm income. Farm Implement News. v.59, no.5. March 10, 1938. p.44. Farmers cash income from sales of products in January is officially estimated at \$603,000,000, which with \$17,000,000 soil conservation payments by the Government, made a total of \$620,000,000. In January, 1937, receipts from marketings were \$638,000,000, and from Government payments \$43,000,000, making a total of \$681,000,000. The receipts of January, 1937, included \$23,000,000 loaned to cotton farmers on 533,000,000 bales of cotton.

Margin of economic security for farm families. By Louis H. Bean. Annals of American Academy of Political and Social Science. v.196. March, 1938. p.25-34. Gives concise illustration of importance of general



Agriculture. (Cont'd)

business conditions and of weather fluctuations on rural insecurity. Does not, however, reveal many economic and social problems which inhere in low living standards among so many of our farm families, traceable not only to general economic and weather hazards, but to farming of poor soil, to displacement by march of mechanization, and to failure of surplus farm population to find more remunerative work in industrial pursuits.

National standard for farm products. By C.W. Kitchen. Industrial Standardization. v.9, no.3. March, 1938. p.62-65. Government standards and grades for agricultural products have had a long history in wholesale markets. Consumers now ask extension to retail markets.

The new farm act; a short summary of the provisions of the Agricultural Adjustment Act of 1938. 8p. U.S. Department of Agriculture. Agricultural adjustment administration. General information series.

Shall we move to the country? Prepared by R.C. Ross and others. Urbana, Ill., 1937. 3lp. University of Illinois. Agricultural experiment station. Circular 479. A statement of the opportunities and problems met in acquiring and managing a small farm.

Trends in agriculture. By George D. Aiken. New England Homestead. v.111, no.3. January 29, 1938. p.3, 14-15. Farmer of today, besides being a student of chemistry, plant and animal breeding, plant and animal diseases, and maintenance of soil fertility, must also be an accountant. It is important that he know marketing methods as well as production methods. Two classes of people depend on agriculture for their living, those who live off farm and those who live off farmer. Farmer must have knowledge of civics and politics in order to meet efforts of those who seek, through enactment of legislation giving them unfair advantages to live off his efforts, to an undue extent. For his own protection, farmer must be financier with a knowledge of money, rates and values. He must know how to establish credit, and how to use that credit when necessary. Changing methods of production have resulted in specialization of crops adaptable to locality in which they are produced.

Type-of-farming areas in New Hampshire. By Harold C. Grinnell. Durham, N.H., 1937. 14p. University of New Hampshire. Agricultural experiment station. Circular 53.

Where is agriculture heading? Implement & Tractor. v.53, no.6. March 19, 1938. p.14-15. To large extent new Agricultural Adjustment Act has possibilities of affecting the industry. Restrictions will naturally be imposed on areas of greatest production and greatest machinery markets.

Air Conditioning.

Application and economy of steam jet refrigeration to air conditioning. By A.R. Mumford and A.A. Markson. Heating, Piping and Air Conditioning. v. 10, no.3. March, 1938. p. 202-211.



Air Conditioning. (Cont'd)

Humidity measurement. By Arthur W. Ewell. Refrigerating Engineering. v. 35, no. 3. March, 1938. p. 176-177.

Refrigeration storage applied to air conditioning. By W.F. Friend. Refrigerating Engineering. v. 35, no. 3. March, 1938. p. 178-182, 185. Part II.

Tentative code of minimum requirements for comfort air conditioning. By Joint Committee of The American Society of Refrigerating Engineers and the American Society of Heating and Ventilating Engineers. Refrigerating Engineering. v. 35, no. 3. March, 1938. p. 186-188.

Alcohol Fuel.

"Alky-gas" plant boomed for Sioux City. By E.L. Barringer. National Petroleum News. v. 30, no. 9. March 2, 1938. p. 25-26, 28, 30. Purpose of Agrol expansion program currently underway in Sioux City territory is to obtain market for Agrol motor fuel through established oil industry outlets, and also to secure source of raw material grown locally for proposed distillery.

Australian power alcohol and liquid fuel league. Australian Sugar Journal. v. 29, no. 11. February 11, 1938. p. 657-660. Principle objects of League are: (1) To work for establishment in Australia of domestic fuel industries such as power alcohol, hydrogenation of coal and the like, with development of their associated products and by-products. (2) To educate members and the public by dissemination of pertinent information concerning these industries and their products. (3) To advocate and encourage use of domestic fuels, and advantage of alcohol blends. (4) To engender and foster public appreciation of dire necessity from national economic and defence point of view of domestic fuel industries, and to advocate their immediate establishment. (5) To affiliate, amalgamate or cooperate with any organization having similar or kindred objects.

New law may provide plant for farm alcohol study. National Petroleum News. v. 30, no. 9. March 2, 1938. p. 30, 32.

Power alcohol. Australian Sugar Journal. v. 29, no. 11. February 11, 1938. p. 661-662.

Power-alcohol blends progressing rapidly. Utah Farmer. v. 58, no. 15. March 10, 1938. p. 9. Research has included all phases of development from selection of suitable farm crops to be used in alcohol manufacture to extensive studies on superior grades of fuel produced by blending anhydrous alcohol with gasoline. Agrol plant is operated as Aichison Agrol Company, Inc. Projects now in progress include varied plant research studies and new methods of anhydrous alcohol manufacture. Particular emphasis will be placed on studies relative to byproducts of alcohol manufacturing from farm crops.



Alcohol Fuel. (Cont'd)

Water tolerances of mixtures of gasoline with ethyl alcohol.. By O.C. Bridgeman and E.W. Aldrich. Washington, U.S. Govt. print. off., 1938. 8p. U.S. National bureau of standards. Research paper RP1059.

Barns.

Hay storage studies - new barn design. Wisconsin Agriculturist & Farmer. v.65, no.4. February 12, 1938. p.17.

New barns for new conditions. By Earl D. Anderson. Agricultural Engineering. v.19, no.3. March, 1938. p.117-119. Extensive research programs are in progress in steel industry aimed at more extensive use of steel in residence construction. Many new light structural members of high strength, new methods of fabrication, and new combinations of steel with other building materials are being developed. As in case of many new methods of construction which have first found acceptance in residence construction, these new developments in use of steel may be expected to be adapted to barn and other farm structures. Research programs in the farm structures field recently initiated by some major organizations in steel industry both in their own laboratories and in cooperation with educational institutions, should hasten development of a more extensive and more intelligent use of steel in barn. Steel has many inherent qualities which make it desirable as building material. Used judiciously in those parts of structures where it serves purpose best, and in combination with other materials where such use will be more satisfactory, steel offers great possibilities for further improvement in farm barns.

Building Construction.

Digest and summary of National Housing Act amendments of 1938. American Builder. v.60, no.3. March, 1938. p.43-45, 104, 106.

Five million decline in rural building. Farm buying power seen as likely under 1937. National News Review. v.2, no.1. January 15, 1938. Sharp decline during late months of 1937 in price received by farmers for products they marketed adversely affected amount of money farmers had available for building during December. Estimated to have been spent for Rural Building during December is \$57,435,000. This is \$4,903,000 less than was spent in November and \$2,956,000 less than was spent in October.

How to estimate accurately. By J. Douglas Wilson. American Builder. v. 60, no. 3. March, 1938. p. 74-75, 106. No.2 in a series on practical estimating - Foundations.

Making, shaping and treating of steel. By J.M. Camp and C.B. Francis. Fourth edition. Pittsburgh, Carnegie-Illinois steel corporation, c 1936. 1142p.



Building Construction. (Cont'd)

Testing cement mortars in sea water. By Thomas E. Stanton, Jr. Engineering News-Record. v.120, no.11. March 17, 1938. p.400-402. Four-year study shows extend to which density of mix and chemical composition of cement are factors in resisting action of salt water when the aggregate used is unaffected by sulphates.

Condensers.

Evaporative condenser; theory and characteristics. By William Goodman. Heating, Piping and Air Conditioning. v. 10, no. 3. March, 1938. p.165-168. Evaporative condenser is item of air conditioning and heat transfer equipment that has developed rapidly in recent months and is finding ever increasing usage. Very little authoritative engineering information about this type of apparatus has been generally available until now. In this discussion the author gives basic methods and equations, with examples showing their use, describes how to compute heat transferred by evaporative condensers, rating of condenser, selection of air quantity and coil area, and spray water temperature and theoretical maximum capacity of condensers. Tables and curves have been designed to simplify solution of evaporative condenser problems.

Conservation.

Soil conservation districts. By D.S. Myer. Agricultural Engineering. v. 19, no. 3. March, 1938. p. 111-113.

Corn-Storage.

Costs of storing corn. By Geoffrey Shepherd and Walter W. Wilcox. Grain & Feed Journals, Consolidated. v.80, no.1. January 12, 1938. p.37.

Corrosion.

Study of underground corrosion of nonbituminous metal coatings. Washington, D.C. National Bureau of Standards, 1938. 6p. Mimeographed U.S. National Bureau of Standards. Technical information on building materials. TIBM-61.

Cotton.

Cotton research laboratory. Cotton Ginners' Journal. v.9, no.6. March 1938. p.13.

Diversification of cotton and cotton products from their normal channels of trade, February, 1938. By Lawrence Myers and E.H. Onohundro. U.S. Department of agriculture. Marketing section, A.I.A.A. 21p. Processed.



### Cotton Machinery.

Power units for cotton gins. By Orville Adams. Cotton and Cotton Oil Press, v. 39, no. 7. February 12, 1938. p.10-11. Tabulation no.1. For natural gas: cost per hour to operate. Tabulation no.2. For gasoline; cost per hour to operate.

Cotton spindleage in the United States. By A.W. Benoit. Mechanical Engineering. v. 60, no. 2. February, 1938. p.123-126. Some comments on its growth and the future.

Texas ginners use diesel power. By Orville Adams. Cotton & Cotton Oil Press. v. 39, no. 8. February 19, 1938. p. 3-4.

### Dams.

Design of rock-fill dams: Discussion. By Charles H. Paul and A. Floris. Proceedings of American Society of Civil Engineers. v.64, no.2. February, 1938. p.372-373.

Design of rock-fill dams: Discussion. By Howard F. Peckworth, Oren Reed, Walter L. Huber, Samuel B. Morris and L.F. Harza. Proceedings of American Society of Civil Engineers. v. 64, no. 3. March, 1938. p.373-581.

Why Marshall dam failed. Engineering News-Record. v.120, no.12. March 24, 1938. p.431-432. Board of engineers finds underlying strata composed largely of clays and silts capable of plastic flow.

### Ditches.

Blasting ditches with dynamite. By W.C. Harrington. Amherst, Mass., 1938. 6p. Massachusetts state college. Agricultural extension service. Engineering extension series no.30. Mimeographed.

### Drainage.

Drainage basin problems and programs, 1937 revision. National resources committee. Washington, U.S. Govt. print. off., 1938. 154p.

Repair of land drains making food farms better the Bureau of Agricultural Engineering reports. Agricultural News Letter. (duPont). v. 6, no. 1. January, 1938. p. 17-18. Information given here by United States Bureau of Agricultural Engineering serves both to show great importance of farm drainage and to emphasize need for maintaining drainage systems. This is supplemented by facts on special uses of dynamite in connection with ditches.

### Electric Service.

Control systems for domestic loads. By W.B. Buchanan. The Bulletin. Hydro-Electric Power Commission of Ontario. v. 25, no. 2. February, 1938. p.62-65.



## Electric Service. (Con'd)

In the new electrical code. By A.B. Smith. Factory Management and Maintenance. v. 95, no. 12. December, 1937. p. 95-96, 146, 148. New rules have been adopted, old ones changed, in the National Electrical Code to increase both the safety and the reliability of electrical services. ✓

## Electricity-Distribution.

Concrete poles in rural areas. By John McCombe. Electrical Review. v. 122, no. 3146. March 11, 1938. p. 349-350. ✓

Extension program for helping farmers to make electricity practical. By D.G. Ebinger. Agricultural Engineering. v. 19, no. 3. March, 1938. p. 107-108. ✓

Rural electrification extension program. By R.R. Parks. Agricultural Engineering. v. 19, no. 3. March, 1938. p. 122. Extension work on rural electrification in Illinois has evolved three general services (1) organization for securing electric service; (2) wiring and selection of equipment; and (3) utilization. ✓

Utilities in New York construct 3,200 miles rural lines in year. Electrical World. v. 109, no. 8. February 19, 1938. p. 4. Public Service commission reports there are 33,000 miles of lines in state serving 87,000 farms. Utility customers save \$10,886,000 a year by rate cuts. Tax on companies prevents further reductions.

## Electricity on the Farm.

Advantageous use of electricity on the farm. By Andrew Hustrulid. Implement & Tractor. v. 53, no. 5. March 5, 1938. p. 20, 24. Inferior appliances will be most expensive in long run, although saving may seem material at time. Equipment of poor quality is usually more costly to operate, has higher maintenance cost and has shorter life. Electricity at work on farm doing tasks farmer has to perform means lessening of drudgery, increased leisure and provision of comforts and conveniences that make for health and happiness - in short - saving of time, labor and money, and an increase in health and happiness.

Buying electrical equipment. Pullman, Washington, 1937. State college of Washington. Extension service. Extension circular 27.

Electricity on a fruit farm. By John L. Burgan. American Agriculturist. v. 135, no. 4. February 12, 1938. p. 5.

Farm electric equipment handbook. U.S. Rural electrification administration. Washington, D.C., 1937. Various paging. Mimeographed.



### Erosion Control.

Engineering in erosion control. By Quincy C. Ayres. Civil Engineering. v. 8, no. 4. April, 1938. p. 240-242. Brief survey of principles and possibilities in an expanding field. Perhaps because structures it requires are simple and small, one is prone to think of erosion control as offering few possibilities for exercise of engineering talent. Actually, however, it is fast becoming a highly technical field, involving variety of complex problems in hydrology and soil mechanics. Province of engineer in erosion control, as distinct from agronomist or forester, is outlined.

Soil erosion and its control on vegetable lands. By A.F. Gustafson. Market Growers Journal. v. 62, no. 5. March 1, 1938. p.131, 134.

Soil erosion in Ohio. By G.W. Conrey, J.S. Cutler, and A.H. Paschall. Wooster, Ohio, 1937. 32p. Ohio agricultural experiment station. Bulletin 589.

What is soil erosion? By C.F. Stewart Sharpe. Washington, U.S. Govt. print. off., 1938. 84p. U.S. Department of Agriculture. Miscellaneous publication no.286.

### Evaporation.

Comparative rates of water loss from soil, turf, and water surfaces. By F.A. Welton and J.D. Wilson. Bimonthly Bulletin - Ohio Agricultural Experiment Station. v. 23, no. 190. January-February, 1938. p.13-16. Record experiments to determine possibility of using evaporation index as criterion for timing and amount of applications of water to turf grasses have served to emphasize need of further knowledge concerning comparative rates of water loss from different surface types. Purpose of this experiment was to obtain such information as it pertains to a free water surface, bare soil, same soil types covered with growing grass, and to atmometer.

### Farm Buildings.

Billion-dollar market for tenant houses seen on farms of nation. American Lumberman. v. 63, no. 3117. January 15, 1938. p.28-30. Program would benefit millions of people in America through increase of employment and sale of materials, home furnishings, appliances. Second dwelling on farms proves profitable investment by stabilizing labor, improving agriculture, providing home for retired owner.

Cribs and granaries of clay tile. By C.T. Bridgman. Agricultural Engineering. v. 19, no. 3. March, 1938. p. 115-116, 119.

FSA develops all-steel farm buildings. Agricultural Engineering. v.19, no.3. March, 1938. p.110. It has been estimated that entire group of buildings - including five-room house, barn, smoke-house, poultry house and sanitary privy - can be delivered unassembled for



Farm Buildings. (Cont'd)

approximately \$2,000. In order to keep both initial costs and maintenance at a minimum, farm structures have been built of prefabricated panels of galvanized copper-bearing steel, welded to light cold-rolled steel structural members. Novel system of attaching the buildings to their foundations has been utilized. Bearing plate welded to two hot-rolled channels, forms supporting pier. Floors are carried on welded, built-up girders. Steel window sashes and built-up, flush-type doors were installed in their panels in shops, thus reducing construction costs.

Hog houses are "in season" again. Lumber and Building Material Dealer. v. 7, no. 2. February, 1938. p.12.

Low-cost farm unit, built wholly of steel. Science News Letter, v.33, no.9. February 26, 1938. p.131. Pre-fabricated farm unit, which comprises five structures, can be delivered unassembled for \$2,000, when manufactured on mass production basis, engineers for builders claimed. Five-room house, barn, smoke house and sanitary outhouse make up farmstead, one of a number of experimental projects being carried out by Farm Security Administrator in attempts to develop low-cost farm housing. Buildings are assembled from prefabricated panels four feet wide. Model was prefabricated by Decatur Iron & Steel Company of Decatur, Alabama, from material supplied by Tennessee Coal, Iron and Railroad Company.

New buildings from old. By Dave Thompson. Prairie Farmer. v.110, no.3. January 29, 1938. p.8, 21.

Farm Machinery-Housing.

Housing and equipment. By T.B. Charles. New England Homestead. v.111, no.4. February 12, 1938. p.6, 11. Tendency in many cases towards simplification and economy of construction.

Pumphrey proves care adds years to machinery use. By Elmer J. Johnson. Western Farm Life. v.49, no.4. February 25, 1938. p.3, 8.

Farm Machinery and Equipment.

Dam busters. By Elias K. Holt. Capper's Farmer. v. 49, no.3. March, 1938. p.16.

Damming attachments on listers add to their popularity. By E.A. Stephenson. Kansas Farmer. v. 75, no. 4. February 12, 1938. p.22.

Drill for spacing beet. International Sugar Journal. v.40, no.470. February, 1938. p.60-61. Value of spacing is three-fold; saving of seed, saving of labor costs on singling and increased yield.

Electric lawn mower for a dollar and a half. Electrical Ruralist. v. 1, no. 5. September, 1937. p.18.

Farm Machinery & Equipment. (Cont'd)

Family farm operation. By Harry G. Davis. Wisconsin Agriculturist & Farmer. v. 65, no. 4. February 12, 1938. p.13.

Family-operated farms and farm machinery. By Harry G. Davis. Prairie Farmer. v.110, no.3. January 29, 1938. p.7, 24.

Family-operated farms and farm machinery due for Wisconsin. By Harry G. Davis. Wisconsin Agriculturist & Farmer. v. 65, no. 3. January 29, 1938. p.7, 24.

Family-operated farms and farm machinery due for Wisconsin. By Harry G. Davis. Wisconsin Agriculturist & Farmer. v.65, no.3. January 29, 1938. p.6, 11. Tells how models have changed. Brings out advantages of such farm under favorable conditions of operation with mechanical equipment in use today.

Farm equipment trade bucks recession. Implement Record. v. 35, no.3. March, 1938. p.13, 66. Dunn & Bradstreet strikes bright note in report on Spring prospects: farm spending power cited.

Gain in implement exports in 1937. Farm Implement News. v. 59, no.5. March 10, 1938. p.45.

How farm machinery has changed. By Harry G. Davis. Michigan Farmer. v. 189. no. 4. February 12, 1938. p.4, 16, 32.

Improved methods of haying leave little to chance. By Richard M. Bimson. The Furrow. v. 43, no. March-April, 1938. p. 4, 12. Haymaking in the old days - and as it is now.

Machines now do more for family-size farms. Wisconsin Agriculturist & Farmer. v. 65, no. 2. January 15, 1938. p.9.

Machines that fit the farm. By Harry G. Davis. Nebraska Farmer. v.80, no.6. March 12, 1938. p.7.

Mechanical beet blocking tested on 1936 and 1937 crops. By Elmer J. Johnson. Western Farm Life. v.39, no.24. December 15, 1937. Advantages of these machines as follows: 1- Reduces time to do job. 2. Conserves moisture by leaving mulch in row. 3. Can be set to cut out any desired space and leave blocks on any size wanted. 4. Can work in ground too wet for duckfeet to scour in cross blocking. 5. Adjustable to any desired depth of cut. 6. Is selective where beets are thin due to poor germination. 7. Can do the job quickly when it should be done. 8. Works well on ridges, in furrows or on flat ground, which is not true of cross-blocking machines. 9. Cultivates and blocks at the same time. 10. Eliminates need of prior cultivation to blocking as with hand labor. 11. Helps solve labor shortage or labor difficulties. 12. Can be set so close in blocking as to eliminate absolute necessity of hand thinning. Disadvantages which might be



Farm Machinery & Equipment. (Cont'd)

listed include: 1. Not enough experience as yet to bring out all of the faults. 2. Takes work away from those accustomed to serving as hand laborers. 3. Beets should still be thinned by hand. 4. Exact spacing is set until changed. 5. It is mechanical.

Needed improvements in potato machines. By M.G. Huber, Agricultural Engineering. v.19, no.3. March, 1938. p.105-106.

New farm transportation unit. By F.W. Duffee. Agricultural Engineering. v. 19, no. 3. March, 1938. p.103-104, 106.

New machinery developed to carry out new farming ideas. By Tudor Charles. Kansas Farmer. v. 75, no. 4. February 12, 1938. p. 23, 33.

New machines aid western agriculture. Western Farm Life. v.40, no.4. February 15, 1938. p.5. Illustrations.

Problems for the farm machinery man. By L.W. Hurlbut. Implement & Tractor. v.53, no.5. March 5, 1938. p.33, 36. Farmer will soon be in position to demand service - good service - to insure maximum returns on his investment.

Servicing the oil-washed air cleaner. By Fred R. Nohavec. Implement & Tractor. v.53, no.5. March 5, 1938. p.34, 36.

Small diameter feed collector. By Olin M. Geer. Agricultural Engineering. v. 19, no.3. March, 1938. p.109-110.

Stealing old stuff. By Cordell Tindall. Kansas Farmer. v.75, no.4. February 12, 1938. p. 6, 27. Principles of today's streamlined machinery were worked out centuries ago.

Farm Power.

Farms lose 376,000 more horses and mules. Farm Implement News. v.59, no.5. March 10, 1938. p.44.

Fences.

Demonstration of better fence building. By Frank J. Reynolds. Agricultural Engineering. v.19, no.3. March, 1938. p.121

The electric fence. By L.W. Neubauer. St. Paul, Minn., 1938. 1p. University of Minnesota. Agricultural extension division. Agricultural engineering news letter no.72.

Fence security. By Frank J. Reynolds. Capper's Farmer. v. 49, no.3. March, 1938. p.13, 25.

Pointers on electric fence. Wisconsin Agriculturist & Farmer. v. 65, no.2. January 15, 1938. p.22.

### Fertilizer Placement.

Fertilizer placement influences profit. By Lewis P. Watson.  
American Fertilizer. v.88, no.4. February 19, 1938. p.12-13.

### Fire Protection.

Fire protective construction on the farm. Prepared by the Bureau of Chemistry and Soils, Agricultural Engineering, and Agricultural Economics, in cooperation with the National Fire Protection Association. Washington, U.S. Govt. print. off., 1938. 22p. U.S. Department of Agriculture. Farmers' bulletin no.1590.

### Flax.

Flax: Experimental studies in growing, decortivating, chemical degumming, and manufacturing into yarns and papers. By H.H. Willis. Washington, D.C., Textile foundation, inc., 1938. 32p.

Flax and hemp, from the seed to the loom. By George A. Lowry.  
Mechanical Engineering. v.60, no.2. February, 1938. p.141-146.

### Floods and Flood Control.

Flood compacts defended at Engineers' meeting. Engineering News-Record. v. 120, no. 12. March 24, 1938. p.439-440. Discussion of flood-control before Connecticut Society followed by papers on early canals, state boundaries, sewage treatment and structural developments.

Flood-protection data. Progress report of the committee. Proceedings of American Society of Civil Engineers. v.64, no.2. February, 1938. p.333-340.

Flood routing. By Edward J. Rutter, Quinton B. Graves and Franklin F. Snyder. Proceedings of American Society of Civil Engineers. v.64, no.2. February, 1938. p.291-310. Method used for routing floods through Tennessee River is described. First, method for routing floods in natural condition from Knoxville, Tenn., to mouth of Tennessee River was developed, and then procedure was adapted to routing through reservoirs of authorized and proposed projects. To analyze flood reduction, complete river system was considered as unit for various floods. General procedure for all reaches is described, and detailed example for Watts Bar-Chickamauga Reach is included. Finally, results are given for effect of proposed system of dams on 1926-1927 flood and on flood 50% larger.

Floods in Sacramento Valley, California, December, 1937. By E.H. Fletcher. Monthly Weather Review. v.65, no.12. December, 1937. p.141-144.

Southern California coastal plain ravaged by flood. By N.A. Bowers. Engineering News-Record. v.120, no.10. March 10, 1938. p.349-351. Downpour of 15 inches in single day sends record flood volumes



Floods and Flood Control. (Cont'd.)

down all stream channels, cutting communication and causing large death list and property loss despite successful functioning of flood-control works so far completed.

Floors.

Raising calves on wire floors. By H.H. Tucker. Hoard's Dairyman. v.83, no.2. January 25, 1938. Savings of labor, bedding, etc., obtained by this method are of course very important, but are relatively small when compared to improved health, greater gains, and more rapid growth of calves.

Flow of Water and Gases.

Flow characteristics in elbow draft-tubes: Discussion. By C.A. Mockmore. Proceedings of American Society of Civil Engineers. v.64, no.2. February, 1938. p.344-346.

Flumes.

Laboratory investigation of flume traction and transportation: Discussion. By Hans Kramer. Proceedings of American Society of Civil Engineers. v.64, no.3. March, 1938. p.603-604.

Generators.

Construction of engine waste heat generators. By Charles A. Bennett and Victor L. Stedrensky. Cotton Ginners' Journal. v.9, no.6. March, 1938. p.5-6, 14, 26, 29.

Grain-Moisture Content.

Efficiency of electric moisture testers. By D.A. Coleman. Grain & Feed Journals, Consolidated. v. 79, no.3. August 11, 1937. p.118-119. Discussion of tests by Dominion grain research laboratory and U.S. Bureau of Agricultural Economics.

Heating.

Graphic - A.C. solutions. Domestic Engineering. v.151, no.3. March, 1938. p.66-68, 129-130. Equipment, sensible and latent heat gains in a.c. work determined by use of interpretive charts.

Savings - in fuel consumption. Domestic Engineering. v.151, no.3. March, 1938. p.54-55, 120. Reduced night temperature by means of thermostatic control is discussed.

Hitches.

New squadron cart hitch. Farm Implement News. v.59, no.5. March 10, 1938. p.33.

### Hotbeds.

Electric hotbeds. By John E. Nicholas. Pennsylvania Farmer. v.118, no.4. February 12, 1938. p.22-23. Diagram gives construction of typical electric hotbed.

Electric hotbeds by the acre. Arkansas Farmer. v.40, no.3. March, 1938. p.8. Gives details of wires, lighting and switch in electrically heated hotbed of growing plants.

Flue-heated hotbed is cheap and simple. Washington Farmer. v.63, no.6. March 17, 1938. p.18. It is not only less work to install but furnishes more uniform heat, and allows hotbed to be used later in season as cold frame simply by disconnecting fire. Principle of flue hotbed is same as in heating residence with warm air.

### Houses.

Frameless houses planned by Forest Service. Wisconsin Agriculturist & Farmer. v.65, no.2. January 15, 1938. p.5, 10. Being given final tests by Forest Service. New frameless house is constructed of prefabricated plywood panels. Plywood panels are made by glue-welding sheets of plywood to both sides of light interior framework. Panels thus built will be room-size wall, partition, floor and roof sections four feet wide. Although wall panels are only three inches in thickness they have strength greater than usual two-by-four stud walls. Floor panels six inches thick are stronger than the two-by-ten joists usually employed. Newest form of phenolic-resin-bonded plywood is used, and tests indicate that life of panels in a house are comparable to wood in frame houses which last a century or more.

House designed to suit a woman. By James F. Schindler. The Farmer. v.56, no.4. February 12, 1938. p.5, 31.

### Hydraulics.

Hydraulic jump and its top roll and the discharge of sluice gates. By Kazimierz Woycicki. Translated by I.B. Hosig. Denver, Colo., 1934. 33p. U.S. Bureau of Reclamation. Technical memorandum no. 435. Mimeographed.

Hydraulic structures. A review prepared by William F. Durand. Mechanical Engineering. v.60, no.2. February, 1938. p.131-132, 140.

Hydraulic structures; a text and handbook. By Armin Schoklitsch. Translated by Samuel Shulits. New York, American Society of Mechanical Engineers, 1937. 2 v.

Hydraulic tests of small diffusers. By F.T. Mavis. Andreas Luksch and Hsi-Hou Chang. Iowa City, Iowa, 1938. 28p. University of Iowa Studies. Studies in Engineering. Bulletin 13.



### Hydroponics.

Tank - the newest thing in agriculture. By J.E. Stanford. Southern Agriculturist. v.68, no.2. February, 1938. p.54.

### Insect Control.

Preparations under way for 1938 hopper battle. By Jim White. Western Farm Life. v.40, no.4. February 15, 1938. p.28. Gives sketches of grasshopper bait spreader which may be hooked to rear of auto.

### Insulation.

New insulation studies. Part 1. By E.R. Queer and F.G. Hechler. Refrigerating Engineering. v.35, no.3. March, 1938. p.167-171. Tests to determine properties for representative group of low temperature insulation materials were made in Thermal Plant of Engineering Experiment Station at The Pennsylvania State College. Few of the tests like that for thermal conductivity by use of guarded hot plate, have been fully standardized, but for others there appear to be no standards whatever. Methods used in laboratory for various tests and summary of results obtained are presented in paper.

### Irrigation.

Flood irrigation. By Henry Syverud. Montana Farmer. v.25, no.12. February 15, 1938. p.3. Care needed in selecting reservoir dam site

How much water for Pima? By G.E.P. Smith. Arizona Producer. v.16, no.24. March 1, 1938. p.4. Ground preparation and irrigation schedule may mean more than quantity.

Mechanics of irrigation and crop selection. By Leslie Bowen. Reprint from Nebraska State Irrigation association Proceedings of address delivered at forty-fourth Annual Convention, held at North Platte, on December 7-8, 1936. 15p.

Methods of irrigation and preparing land for irrigation. By Leslie Bowen. Reprinted from the 18th Annual report of the Nebraska Potato improvement association, March, 1937. p.18-24.

Rotary sprinkler for small farms. Wisconsin Agriculturist & Farmer. v.65, no.4. February 12, 1938. p.17.

Sprinkler irrigation in humid sections of Oregon. By F.E. Price. Implement Record. v.35, no.3. March, 1938. p.14-15, 55, 64.

### Land Utilization.

Land utilization in New Hampshire. I. Problems in the back highland areas of southern Grafton county. By H.C. Woodworth, M.F. Abell, and J.C. Holmes. Durham, N.H., 1937. 70p. University of New Hampshire. Agricultural experiment station. Bulletin 298.

Miscellaneous.

Bibliography of North American geology for 1935 and 1936. By E.M. Thom. Washington, U.S. Govt. print. off., 1937. 504p. U.S. Geological survey. Bulletin 892.

Farm production of sorgo sirup. By C.F. Walton, E.K. Ventre, and S. Byall. Washington, U.S. Govt. print. off., 1938. 40p. U.S. Department of Agriculture. Farmers' bulletin no.1791.

Journal of the Royal agricultural society of England, including Farmer's guide to agricultural research. v.97, 1936. Housing the agricultural worker, p.1-12. Labour, power and equipment in arable farming, p.12-32. Farm implements and machinery, p.210-236. Report on new implements entered at the Bristol show, 1936, p.403-413.

List of available publications of the United States Department of Agriculture. January 3, 1938. Compiled by F.L. Zimmerman and P.R. Bead. Washington, U.S. Govt. print. off., 1938. 199p. U.S. Department of Agriculture. Miscellaneous publication no.60.

Minutes of Proceedings of the Punjab engineering congress, Lahore, 1937. Edited by members of the Council. Lahore, Mufid-I-'Am Press, 1938? 188p. Water logging on the upper Chenab canal - its causes and cure. R.B.B.N. Singh. Agricultural economics with special reference to irrigation problems in the Punjab. By W. Roberts. Turbulent flow in channels. (A development from the Lacey theory). By T. Blench. Regulation gauge for headless canal meters. By A.N. Wilson.

Science and civilization. By O.W. Israelsen. Reprint. President's address at 1937 annual meeting of the Utah Academy of Science. 81-89p.

Secretary's handbook; a manual of correct usage. By S.A. Taintor and K. M. Monro. Fifth edition, completely reset and revised. New York, MacMillan company, 1938. 512p.

Social sciences and engineering education. By William E. Wickenden. Mechanical Engineering. v.60, no.2. February, 1938. p.147-150.

Work of the United States Forest Service. Prepared by the Forest Service. Washington, D.C., Govt. print. off., 1938. 40p. United States Department of Agriculture. Miscellaneous publication no.290.

Models.

Use and trustworthiness of small-scale hydraulic models. By Paul W. Thompson. Civil Engineering. v.8, no.4. April, 1938. p.255-257.



### Motor Fuel.

Effect of test conditions on fuel rating. By A.E. Becker. S.A.E. Journal. v.42, no.2. February, 1938. p.63-72. Progress report of Cooperative Fuel Research Committee, dealing with laboratory section of study of knock-rating correlation problem. It is proposed that these results and those obtained on road be basis for further study aimed at development of better correlation between road and laboratory ratings.

Growing tractor fuel market talked by Northwest jobbers: Editorial National Petroleum News. v.30, no.5. February 2, 1938. p.5, 8-9.

"Low-down" on diesel fuels. By R.J. Bender. Farm Implement News. v.59, no.5. March 10, 1938. p.32-33. Contrary to popular vagaries, a modern diesel will not "burn anything". Fuel oil qualities must be precisely controlled.

Tractor fuels described. By J.B. Torrance. Wisconsin Agriculturist and Farmer. v.65, no.3. January 29, 1938. p.4.

### Motors, Electric

Motor and control applications. By George H. Hall. 1st ed. New York, McGraw-Hill book company, inc., 1937. 259p.

### Poultry Houses and Equipment.

Electric brooders best by test in Indiana. By Truman E. Hienton. Electricity on the Farm. v. 11, no.3. March, 1938. p. 9-10, 26. Eight different brooders all produce excellent results - records of five year's studies.

Electric brooding. By H.L. Richardson. New England Homestead. v.111, no.4. February 12, 1938. p.19. Most satisfactory where room temperatures kept above freezing.

Feeding equipment is always necessary. Lumber & Building Material Dealer. v.7, no.2. February, 1938. p.13.

This poultry house will appeal to many. Lumber & Building Material Dealer. v.7, no.2. February, 1938. p.13.

### Power Development.

Hydro-electric possibilities in North China. By C.A. Middleton-Smith. Electrical Review. v.122, no.3145. March 4, 1938. p.309-310. Although most of China's 20 million h.p. of water power is inaccessible there is scope for development.

### Public Works.

Engineering economics and public works: - a symposium. Proceedings American Society of Civil Engineers. v.64, no.2. February, 1938. p.227. Advantages of orderly planning. By Frederick H. Fay. Influence of public opinion. By Daniel W. Mead. Hazards of uneconomical construction. By Henry Early Riggs. Appeal to reason. By William J. Wilgus.

Engineering economics and public works. A symposium: Discussion by J.K. Finch. Proceedings of American Society of Civil Engineers. v.64, no.3. March, 1938. p.539-543.

### Reclamation.

Reclamation of alkali soils. By W.P. Kelley. Berkeley, Cal., 1937. 40p. University of California. Agricultural experiment station. Bulletin 617. Bibliography, p.40.

### Refrigerator Lockers.

Freezing storage of vegetables in farmers cold storage lockers. By L.A. Somers. Urbana, Ill., 1938. 7p. University of Illinois. Extension service in Agricultural and Home economics. Mimeographed.

### Research.

New regional laboratories and U.S. research in agriculture along several important lines. Agricultural News Letter. (duPont) v.6, no.1. January, 1938. p.15-16. Laboratory for study of animal parasites in Southeast, one for development of swine breeding in North Central States, and third laboratory for sheep improvement in range States, were approved under provisions of Bankhead-Jones Act. Three new laboratories supplement three similar developments - vegetable breeding laboratory for Southeast, soybean laboratory in Corn Belt, and pasture improvement laboratory for Northeast - which are now well established with research going forward.

### Seed testing.

Seed treater made easily. Western Farm Life. v.40, no.3. February 1, 1938. p.5. Gives blueprint of Minnesota-Moore seed tester.

### Seepage.

Simple methods and equipment test seepage from dams. By S.S. Green. Engineering News-Record. v.120, no.13. March 31, 1938. p.466. Seepage from Los Angeles water supply dams examined for possible erosive conditions.

### Silt.

Automatic silt extractors without loss of water. By Pandit K.R. Sharma. Indian Engineering. v.103, no.1. January, 1938. p.17-18.



Silt. (Cont'd)

Bed load transportation and the stable channel problem. By Samuel Shulits and W.E. Corfitzen. Reprinted from the Transactions of the American Geophysical Union, Eighteenth Annual meeting, 1937. p.456-467. References, p.466-467.

Measurement of debris-laden stream flow with critical-depth flumes: Discussion. By R.L. Parshall and Martin A. Mason. Proceedings of American Society of Civil Engineers. v.64, no. 2. February, 1938. p.347-353.

Measurement of debris-laden stream flow with critical-depth flumes: Discussion. By Edwin S. Fuller. Proceedings of American Society of Civil Engineers. v.64, no.3. March, 1938. p.560-565.

Soil Moisture.

Soil moisture and crop production under dry land conditions in western Canada. By S. Barnes. Ottawa, Canada. 1938. 43p. Dominion of Canada. Department of agriculture. Farmers' bulletin 46. References.

Traite pratique des distribution d'eau et des egouts. By Leon Bonnet. Paris, Librairie polytechnique, Ch. Beranger, 1931. 795p.  
Hydraulique: Hydrostatique, hydrodynamique, orifices, ajutages, deversoirs, calcul des canaux, des aqueducs, des egouts, calcul des conduites d'eau.

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Sterilizing soil with electricity. By Ben W. Faber. Electric Journal. v. 35, no. 3. March, 1938. p.121.

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Chemical composition of soils and colloids of the Norfolk and related soil series. By R.S. Holmes, W.E. Hearn, and H.G. Byers. Washington, D.C., 1938. 34p. United States Department of Agriculture. Technical bulletin no.594.

Practical application of soil mechanics. A symposium: Discussion. By Charles Sencur, Donald M. Burmister and Donald W. Taylor. Proceedings of American Society of Civil Engineers. v.64, no.2. February, 1938. p.357-371.

Soils of Iowa. By P.E. Brown. Ames, Iowa, 1936. 261p. Iowa state college of agriculture and mechanic arts. Experiment station. Special report no.3.

Graphical representation of mechanical analyses of soils: Discussion. By Donald M. Burmister and A.J. Weinig. Proceedings of American Society of Civil Engineers. v.64, no.2. February, 1938. p.397-401.

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Graphical representation of the mechanical analyses of soils: Discussion. By Carl H. Kadie, Jr., Carlton S. Proctor, T.T. Knappen, Jacob Field and Howard F. Peckworth. Proceedings of American Society of Civil Engineers. v.64, no.3. March, 1938. p.612-618.

Soldering.

Soldering. By W.C. Harrington. Amherst, Mass., 1938. 5p. Massachusetts state college. Agricultural extension service. Engineering extension series, no.68. Mimeographed.

Spraying and Dusting.

Citrus dusting equipment. By Orval C. French. Implement Record. v.35, no.3. March, 1938. p.19-20, 53.

Storage Houses.

Timber storehouses built for mill refuse fuel. Engineering News-Record. v.120, no.11. March 17, 1938. p.402-403. Frame roof of 52-ft. span is designed to resist internal impact stresses, and does so without tie beams.

Sugar Beets.

Ridge planting of sugar beets. By B. Regnar Paulsen. Facts about Sugar. v.32, no.8. August, 1937. p.308-309. New planting method which has been found to offer advantages in growing beets under irrigation.

Terracing.

Terraces. By Harry E. Reddick. Implement Record. v.35, no.3. March, 1938. p.16-17, 62.

Tires.

Dual tractor tires help on marsh soil. Wisconsin Agriculturist & Farmer. v.65, no.2. January 15, 1938. p.13.

Fifteen reasons why air tires made a hit with tractor owners. By Harry G. Davis. Kansas Farmer. v.75, no.4. February 12, 1938. p.11. (1) Save fuel; (2) do more work; (3) easier riding; (4) easier on tractor; (5) give tractor more power; (6) can drive on improved and paved highways; (7) increase life of tractor; (8) can pull heavier loads; (9) can do more kinds of work; (10) throw less dust about operator; (11) reduce repair bills; (12) pack soil less than steel wheels; (13) reduce vibrations; (14) enable operator to do better work, and (15) are better in orchards when working around fruit trees.



### Tires. (Cont'd)

Riding on air. By Harry G. Davis. Missouri Ruralist. v.79, no.4. February 19, 1938. p.1, 16. Reasons why rubber tires have made hit with tractor owners.

Riding on air and water. By George Dobry. Nebraska Farmer. v. 80, no.5. February 26, 1938. p.14, 21. Recommended general procedure in brief, for filling tires is: (1) Jack up tractor and turn wheel so as to place inner tube valve in top position. (2) Remove valve core to bleed air from tire, attaching hose adapter immediately to valve so that it will not be pulled back into valve hole as air is released. (3) Attach hose to adapter. (4) Fill tire with water or anti-freeze solution to desired level. (5) When tire is filled to desired level, remove adapter from valve and replace valve core securely in valve stem. (6) Inflate tire with air to proper pressure (12 to 16 pounds), remove jack.

### Tractors.

1937 tractor, combine and grain thresher production and sales, (preliminary). Northwest Farm Equipment Journal. v.52, no.3. March, 1938. p.31-32.

Nebraska tractor tests, 1920-1937. The Nebraska tractor law: General procedure and rules for official tractor tests. Lincoln, Nebraska, 1938. 43p. University of Nebraska. Agricultural experiment station. Bulletin 313.

Speed. By Jerry Oliphant. Capper's Farmer. v.49, no.3. March, 1938. p.7.

These dos and don'ts of tractor care have been farm proved. By C.N. Hinkle. Kansas Farmer. v.75, no.4. February 12, 1938. p.12-13, 29.

Tractor costs in Michigan. By H.B. Taylor. Market Growers Journal. v.62, no.5. March 1, 1938. p.136-138. Table 1. Yearly and hourly cost of using 56 Michigan tractors. 1936. Table 2. Relation of hours of use to tractor costs and farm operating efficiency (2-plow tractors), 1936.

Trend toward gasoline-powered low-priced farm tractors. By John W. Thompson. National Petroleum News. v. 30, no.5. February 2, 1938. p.36-37. Table, supplied by International harvester co., shows effect of octane rating, compression ratio, and manifold heat in a test made on one tractor engine having 200 cubic inches piston displacement.

### Water Policy.

A water policy evolves. Engineering News-Record. v.120, no.12. March 24, 1938. p.447-448. National Resources Committee presents revised 6-year plan for water use and control.



### Water Supply.

Geological survey studies surface water. By C.G. Paulsen. Civil Engineering. v.8, no.4. April, 1938. p.247-250. Investigations of water resources had been started in minor way by U.S. Geological Survey in 1888, but it was not until 1895 that such work was begun on systematic basis. To date, stream-flow records indispensable to hydraulic engineers have been collected at more than 7,000 measuring stations in United States. In recognition of pressing need for additional records, Congress in recent years has established a policy of matching State and municipal stream-measurement expenditures with federal funds, giving great impetus to this important activity. Article describes a few of many new and improved designs for equipment suggested by engineers in various district offices, as illustrations of constant progress being made by Survey in development of better and more accurate methods.

Ground water. By C.F. Tolman. First edition. New York. McGraw-Hill book company, inc., 1937. 593p.

Renewing underground water supply. By F.H. Tibbotts. Engineering News-Record. v.120, no.10. March 10, 1938. p.361-365. Data on operation of percolating areas is accumulated and applied successfully in renewing underground supply of California's Santa Clara Valley.

### Water Systems.

Dollars flow where water runs. Implement & Tractor. v.53, no.6. March 19, 1938. p.26.

Planning farm water system. By B.A. Jennings. Electricity on the Farm. v. 11, no.3. March, 1938. p.12-13, 27-28. Quantities needed; pump and tank sizes; flow of water through pipes.

Running water in rural homes. By John C. Myers. Farm Implement News. v.59, no.6. March 24, 1938. p.30-31.

Water without a well. By P.A. Hausser. Western Farm Life. v.40, no.4. February 15, 1938. p.8. Tells how to solve vexing problem with cisterns.

### Watersheds.

Watercycle lysimeters for watershed studies. By Hervert S. Riesbol and George L. Sherman. Agricultural Engineering. v.19, no.3. March, 1938. p.123-128. Data collected both from daily readings of various collector tanks and from records of scale, while not sufficient in extent to establish any trend for experiment, do indicate that lysimeters are properly functioning in accordance with plans of their design.

### Weeds.

Battling bindweed. By Oliver C. Lee. Capper's Farmer. v.49, no.3. March, 1938. p.29.



Weeds. (Cont'd)

Power for bindweed control. By L.J. Fletcher. Implement and Tractor. v.53, no.6. March 19, 1938. p.16-17. Cites trend toward smaller farm tractors as most interesting and significant thing.

Windmills.

Electricity fights frost. By Earl Burke. Electricity on the Farm. v. 11, no.3. March, 1938. p.16. Motor driven propellers mix warm air with cold and prevent formation of dew.

Six-volt lighting. The Farmer. v.56, no.2. January 15, 1938. p.20, 28. Electricity in the home at cost of \$60.

Wind electric plants bring comfort. By Curtis Taylor. Western Farm Life. v.40, no.4. February 15, 1938. p.4. Gives sketch of wind electric plant illustrating general principles involved.

Wood.

How to cut southern farm timber for steady profit. By W.R. Mattoon. Washington, U.S. Govt. print. off., 1938. 8p. U.S. Department of Agriculture. Leaflet no.153.

Wood finishing; plain and decorative. By F.N. Vanderwalker. Chicago. Frederick J. Drake & Co., 1936. 361p. Methods, materials, and tools for natural, stained, varnished, waxed, oiled, enameled, and painted finishes. Antiqued, stippled, streaked and rough glazed finishes. Stain making formulas.

Wood Preservation.

Inner tubes useful for treating posts. Wisconsin Agriculturist & Farmer. v. 65, no.2. January 15, 1938. p.22.

